

REMARKS

The Office Action mailed July 25, 2005 has been carefully reviewed and the foregoing amendments and the following remarks are made in response thereto.

The, specification, drawings and claims 1 and 7 stand objected to for minor informalities. Claims 1-7 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,889,018 to Kinouchi et al. (hereinafter "Kinouchi") in view of U.S. Patent No. 6,775,491 to Akutsu et al. (hereinafter, "Akutsu").

By this amendment, the specification, drawings, and claims 1 and 7 have been amended to address the concerns pointed out by the Examiner on pages 2 and 3 of the outstanding Office Action. In particular, the specification, at page 9, line 17, has been amended to have reference numbers 16 and 17 identify the "thermostats" and at page 25, line 5, has been amended to correctly label the "heat roller" with reference number 10. No new matter has been added. Withdrawal of the objections to the specification is respectfully requested.

Figure 8 has been amended to label the horizontal axis with the time dimension "minutes" and the vertical axis with the temperature dimension "°C." No new matter has been added. Withdrawal of the objection to the drawings is respectfully requested.

Claims 1 and 7 have been amended to provide for proper antecedent basis for the features in the claims and to further define the subject matter Applicant regards as the invention. Support for the amendments to claims 1 and 7 can at least be found in Figures 1 and 2 and Pages 8 and 9 of the present specification. Claims 2-6 remain unchanged in the application.

This amendment changes, adds, and/or deletes claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination in the application, is presented, with an appropriate defined status identifier. Thus, claims 1-7 are presently pending in this application for consideration.

Applicant respectfully submits that independent claims 1 and 7, as well as claims dependent therefrom, are patentably distinguishable over the cited references as required by § 103. Applicant further submits that neither Kinouchi nor Akutsu, whether considered alone or in combination, discloses Applicant's claimed fixing device including a center heater, side heaters and first and second power shutoff units and the claimed arrangements of these features within the fixing device. By contrast, the cited references fail to teach or suggest the claimed arrangements of the first and second power shutoff units, the center heater and side heaters. Accordingly, each of the claims is patentably distinguishable over the cited references. These distinctions will be further described below.

THE CLAIMS DISTINGUISH OVER THE CITED REFERENCES

The present invention is directed to a fixing device including a heat roller, a center heater, side heaters and first and second power shutoff units. In particular, the **first power shutoff unit** is arranged *"in a position corresponding to the center heater in the longitudinal direction of the heat roller and on a heat roller surface where distances to the center heater and side heaters are equal in the diameter of the heater roller..."* The **second power shutoff unit** is arranged in a similar manner *"in a position corresponding to one of the side heaters in the longitudinal direction of the heat roller..."* Independent claims 1 and 7 have been amended to clearly recite the position of the **center heater** being *"spaced from a central axis of the heat roller in a first radial direction..."* and the **side heaters** being *"spaced from a central axis of the heater roller in a second radial direction..."* According to the present invention, with the first and second power shutoff units arranged in such a manner, it is possible to use thermostats having the same operating temperature as well as the same type of thermostat for the first power shutoff unit (i.e., the center thermostat) and the second power shutoff unit (i.e., the side thermostat). As such, the cost of the fixing device is reduced and errors in mounting the thermostats are eliminated (Application, Page 28, lines 2-19).

According to the Office Action, Kinouchi discloses all of the elements of independent claims 1 and 7 except for the first and second power shutoff units and the arrangements of these power shutoff units within the fixing device, which deficiency is allegedly fulfilled by

the teachings of Akutsu. Applicant respectfully disagrees with the Office Action's characterization of these references vis-a vis the claims at issue.

Kinouchi generally discloses a fixing unit designed to suppress the occurrence of interference noise and a flicker in a power circuit when increasing the temperature in the longitudinal direction of a fixing roller (Column 19, lines 35-51). The fixing unit 1 includes fixing roller 2 and a pressing roller 3. Provided within the fixing roller 2 is an exciting coil having a first coil 11a located at almost the center in the longitudinal direction of the fixing roller 2 and a second coil 11b provided close to both ends of the fixing roller 2 (Column 4, lines 65-67; Column 6, lines 13-18; and Figures 1 and 2). As the Examiner recognized, Kinouchi does not disclose the first and second power shutoff units (See Office Action at pages 4 and 8). In addition, Kinouchi now also fails to disclose the center heater being *"spaced from a central axis of the heat roller in a first radial direction..."* and the side heaters being *"spaced from a central axis of the heater roller in a second radial direction..."* as recited in each of the amended independent claims. As stated above, Kinouchi merely discloses the first coil 11a and the second coil 11b placed in a center region and side regions, respectively, in the longitudinal direction of the fixing roller 2.

The Akutsu reference does not make up for the deficiencies of Kinouchi. Akutsu is directed to a fixing unit capable of preventing a heat roller from overheating for a long period of time (Column 2, lines 30-33). As shown in Figure 1 of Akutsu, fixing unit 21 includes two heat rollers 22 and 23 with surfaces 24 and 25, respectively, covered with a rubber or resin material. Halogen lamps 26 and 27 are disposed in the heat rollers 22 and 23, respectively, serving as heaters (Column 3, lines 50-58). Thermostats 13 and 14, in the form of overtemperature thermostats, are provided on the surfaces of the heat rollers 22 and 23, respectively. Figures 3, 5 and 6 illustrate alternative embodiments of thermostats positioned on heat rollers. According to the invention disclosed in Akutsu, when a failure of the temperature control for one of the heat rollers 22 and 23 causes a corresponding heat roller to be overheated, a corresponding thermostat (13, 14) operates to shut off the current flowing through the halogen lamps 26 and 27. This reduces the length of time the fixing unit experiences an abnormal operating condition (Column 5, lines 37-45).

Contrary to the Office Action's assertion, Akutsu, does not disclose or suggest the specific arrangements of the first and second power shutoff units. As clearly illustrated in Figures 1 and 2 of the present specification and recited in independent claims 1 and 7, the first power shutoff unit is arranged "*in a position corresponding to the center heater in the longitudinal direction of the heat roller and on a heat roller surface where distances to the center heater and side heaters are equal in the diameter of the heater roller...*" The second power shutoff unit is arranged "*in a position corresponding to one of the side heaters in the longitudinal direction of the heat roller, on a heat roller surface where distances to the center heater and side heater are equal in the diameter direction of the heat roller.*" As discussed above, in Akutsu, the thermostats are arbitrarily placed on the surface of the heating rollers. There is no appreciation found in Akutsu of arranging the power shutoff units in such a manner that the overall cost of the fixing device is reduced or errors in mounting the thermostats are eliminated. This is because Akutsu is concerned with reducing the length of time the fixing device experiences an abnormal condition.

In addition, Applicant respectfully submits that Akutsu also fails to disclose the center heater being "*spaced from a central axis of the heat roller in a first radial direction...*" and the side heaters being "*spaced from a central axis of the heater roller in a second radial direction...*" and was not cited for this purpose. Therefore, even if Kinouchi and Akutsu were combined, the resulting combination would not disclose each of the features of independent claims 1 and 7.

Applicant respectfully submits that each of pending independent claims 1 and 7 is patentably distinguishable over the cited references whether considered alone or in any combination and thus, allowable. Moreover, since independent claims 1 and 7 are allowable, claims 2-6 are also allowable by virtue of their direct or indirect dependence from allowable independent claim 1 and for containing other patentable features. Further remarks regarding the asserted relationship between any of the claims and the cited references is not necessary in view of their allowability. Applicant's silence as to the Office Action's comments is not indicative of being in acquiescence to the stated grounds of rejection.

Accordingly, this application is in condition for allowance and Applicant respectfully requests early notice to that effect.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

Date

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By

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Amendments to the Drawings:

The replacement drawing sheet attached in connection with the above-identified application containing Figures 8 and 9 is being presented as a new formal drawing sheet to be substituted for the previously submitted drawing sheet. Figure 8 has been amended to label the horizontal axis with the time dimension “minutes” and the vertical axis with the temperature dimension “°C.” Appended to this amendment is an annotated drawing sheet of the previously submitted drawing sheet which has been amended to show the changes presented in the replacement drawing sheet.

Attachment: Replacement Drawing Sheet
Annotated Drawing Sheet Showing Changes

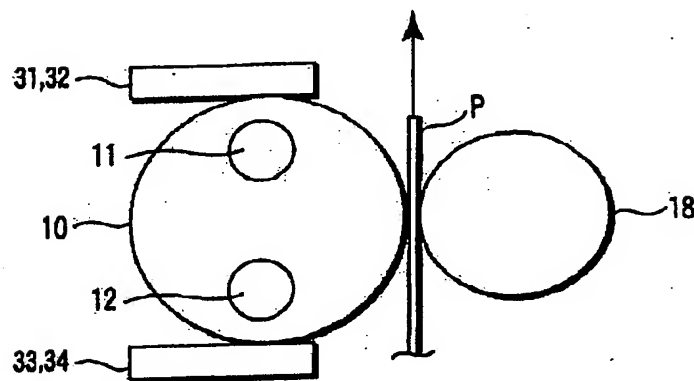
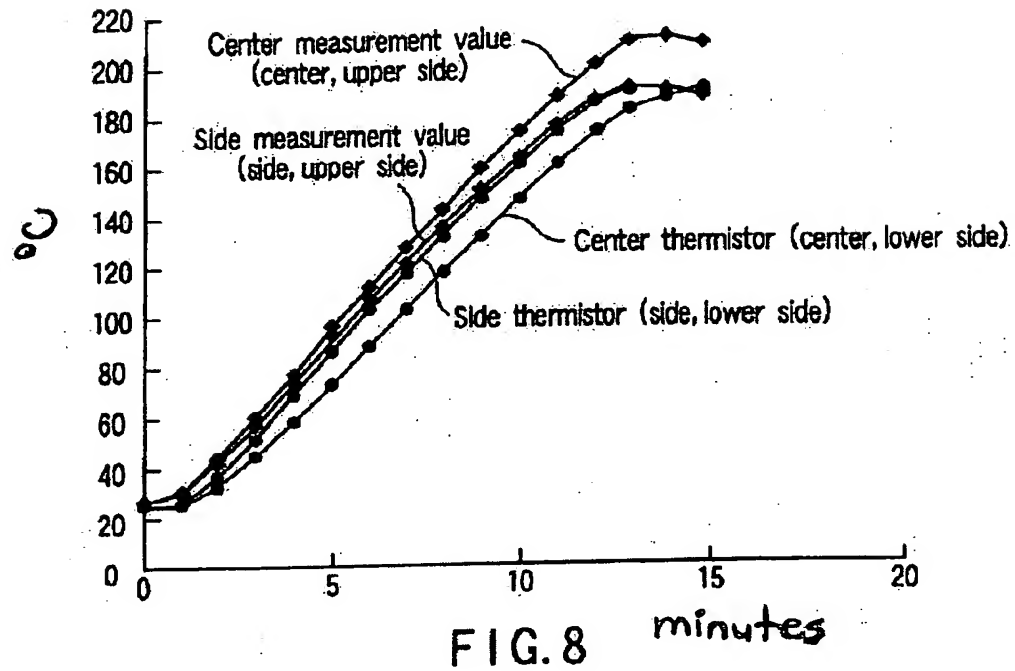


FIG. 9